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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,669	01/12/2006	Naoki Matsuyama	Q85994	8583
65565	7590	05/13/2010		
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2100 PENNSYLVANIA AVE. NW				
WASHINGTON, DC 20037-3213				
EXAMINER				
JOYCE, WILLIAM C				
ART UNIT		PAPER NUMBER		
3656				
NOTIFICATION DATE		DELIVERY MODE		
05/13/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/522,669

Applicant(s)

MATSUYAMA ET AL.

Examiner

William C. Joyce

Art Unit

3656

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 and 107-111 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 5-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 107-111 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/30/2009 & 2/12/2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the Election filed February 12, 2010 for the above identified patent application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 108 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. The limitation "high-speed" (claim 108) is unclear because the term "high" is a relative term, therefore the metes and bounds of the desired patent protection cannot be determined.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2, 4, 107, 108, and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stitz et al. (USP 5,711,615).

Stitz et al. disclose a spindle unit comprising: a rolling bearing including an outer ring (20) having an outer ring raceway on an inner peripheral surface, an inner ring (21) having an inner ring raceway on an outer peripheral surface, and rolling elements (5) provided rollably between the outer ring raceway and the inner ring raceway, whereby a spindle is borne rotatably in a housing; and a lubricant supply system (2) for supplying a lubricant to an inside of the rolling bearing; wherein the lubricant supply system supplies the lubricant in a predetermined amount in one shot.

Stitz et al. does not appear to specifically disclose the lubricant as a grease, but discloses the lubricant can be a solid, a pasty, or liquid. Further, it was notoriously known in the art to use grease as a lubricant for a bearing. It would have been within the ordinary skill in the art to configure the lubricant system of Stitz et al. with grease, since it was well known to use grease to reduce friction in a bearing device.

Stitz et al. does not disclose the claimed amount of lubricant to be supplied to the bearing, but teaches the importance of providing an optimal amount of lubricant based on bearing conditions for a particular application. For example, the amount of lubricant depends of rotational speed, bearing temperature, bearing load, bearing vibration, and so on (for example, see last paragraph of column 5). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to configure the lubricant system of Stitz et al. to supply between 0.004 cc and 0.1 cc of lubricant to the bearing, motivation being to optimize the bearing performance for a particular application. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the bearing with the claimed amount of lubricant, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to claim 107 and 108, Stitz does not appear to disclose the bearing arrangement used in combination with a motor or a tool spindle. However, using a bearing for supporting a high speed motor shaft or a tool spindle was notoriously known in the art. It would have been obvious to one of ordinary skill in the art to use the bearing arrangement of Stitz in either a motor spindle or a tool spindle, motivation being to support the shaft/spindle for rotation with reduced friction.

5. Claims 107-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stitz et al. (USP 5,711,615) in view of the prior art disclosed by applicant in Figures 113-121 and in pages 1-11 of the Specification.

For example, Figure 15 illustrates a ball bearing having a lubrication opening formed in the outer ring, the opening is located in an area other than the raceway

groove. It would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the bearing of Stitz et al. with a lubrication port spaced from the raceway groove, as taught by the prior art illustrated in Figure 15, motivation being to provide lubricant to the rolling elements without reducing the operating capacity of the raceway surface.

In the written disclosure, applicant discloses that it was known to use a lubricated bearing for a tool spindle. It would have been obvious to one of ordinary skill in the art to use the bearing arrangement of Stitz in either a motor spindle or a tool spindle, motivation being to support the shaft/spindle for rotation with reduced friction.

Response to Arguments

6. Applicant's arguments filed February 12, 2010 have been fully considered but they are not persuasive.

Applicant argues "a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation" and "[A]pplicant submits that Stitz is silent about the temperature pulsation and the grease."

Examiner acknowledges Stitz does not specifically disclose the claim amount of lubricant being supplied to a bearing, but clearly discloses the importance of providing a small optimal amount of lubricant to a bearing based on a variety of bearing variables, such as bearing temperature, vibration, and speed (columns 5 to 6). Accordingly, the variables of bearing temperature, vibration, and speed are result effective variables used to determine the amount of lubricant needed for the bearing. Further, a small bearing subjected to a small load would require a small amount of lubricant as compared to a large bearing used to support a large load. Accordingly, one in the art would use the result effective variables of bearing temperature, vibration, and speed to supply the claimed amount of lubricant to a particular bearing for a particular application.

It is acknowledged that Stitz does not specifically disclose the "temperature pulsation" of a bearing, but this argument is not commensurate with the scope of the claims. Specifically, the claims do not specifically recite a temperature pulsation of the bearing. Accordingly, this argument has been given limited patentable weight.

Applicant's arguments are not persuasive and the claims stand rejected as described above.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (571) 272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Joyce/
Primary Examiner, Art Unit 3656